PCT/IL2004/000571
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APPLICATION NUMBER: *60/517,084*
FILING DATE: *November 05, 2003*

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PATENT APPLICATION SERIAL NO. _____

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE
FEE RECORD SHEET

11/05/2003 CCHAU1 00000148 60517084
01 FC:2005 80.00 OP

PTO-1556
(5/87)

*U.S. Government Printing Office: 2002 — 489-267/69033

PTO/SB/16 (08-03)
Approved for use through 07/31/2006. OMB 0651-0032.
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PROVISIONAL APPLICATION FOR PATENT COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53(c).

Express Mail Label No.

INVENTOR(S)		
Given Name (first and middle [if any])	Family Name or Surname	Residence (City and either State or Foreign Country)
MORDECHAI	DEUTSCH	MOSHAV OLESH, ISRAEL

Additional inventors are being named on the _____ separately numbered sheets attached hereto

TITLE OF THE INVENTION (500 characters max)

A MICROSAMPLE CELL EXTRACTION TOUCHING METHOD

Direct all correspondence to: **CORRESPONDENCE ADDRESS**

☐ Customer Number:

OR

☑ Firm or Individual Name	SCHOTTENSTEIN CELLOME RESEARCH CENTER				
Address	BAR ILAN UNIVERSITY				
Address					
City	RAMAT GAN	State		Zip	52900
Country	ISRAEL	Telephone	5342675	Fax	+97235342019

ENCLOSED APPLICATION PARTS *(check all that apply)*

☑ Specification *Number of Pages* 5
☑ Drawing(s) *Number of Sheets* 2
☐ Application Data Sheet. See 37 CFR 1.76
☐ CD(s), Number _____
☐ Other (specify) _____

METHOD OF PAYMENT OF FILING FEES FOR THIS PROVISIONAL APPLICATION FOR PATENT

☑ Applicant claims small entity status. See 37 CFR 1.27.
☑ A check or money order is enclosed to cover the filing fees.
☐ The Director is herby authorized to charge filing fees or credit any overpayment to Deposit Account Number: _____
☐ Payment by credit card. Form PTO-2038 is attached.

FILING FEE Amount ($): 80

The Invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.

☐ No.
☑ Yes, the name of the U.S. Government agency and the Government contract number are: US ARMY MEDICAL RESEARCH AQUISITION ACTIVITY AWARD# DAMD 17-01-1-0131

Respectfully submitted,

SIGNATURE _____ Date 11-05-2003

TYPED or PRINTED NAME MORDECHAI DEUTSCH REGISTRATION NO. _____ *(if appropriate)*

TELEPHONE +97235344675 Docket Number: 28

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This collection of information is required by 37 CFR 1.51. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 8 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: **Mail Stop Provisional Application, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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13281 U.S. PTO 110503

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FEE TRANSMITTAL for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

[X] Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT ($) 80

Complete If Known	
Application Number	
Filing Date	11-05-2003
First Named Inventor	MORDECHAI DEUTSH
Examiner Name	
Art Unit	
Attorney Docket No.	28

METHOD OF PAYMENT *(check all that apply)*

[X] Check [ ] Credit card [ ] Money Order [ ] Other [ ] None

[ ] Deposit Account:

Deposit Account Number
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The Director is authorized to: *(check all that apply)*

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FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
1001	770	2001	385	Utility filing fee	
1002	340	2002	170	Design filing fee	
1003	530	2003	265	Plant filing fee	
1004	770	2004	385	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	80

SUBTOTAL (1) ($) 80

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

	Extra Claims		Fee from below		Fee Paid
Total Claims		-20** =		X	=
Independent Claims		-3** =		X	=
Multiple Dependent					=

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description
1202	18	2202	9	Claims in excess of 20
1201	86	2201	43	Independent claims in excess of 3
1203	290	2203	145	Multiple dependent claim, if not paid
1204	86	2204	43	** Reissue independent claims over original patent
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) ($)

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for *ex parte* reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	
1252	420	2252	210	Extension for reply within second month	
1253	950	2253	475	Extension for reply within third month	
1254	1,480	2254	740	Extension for reply within fourth month	
1255	2,010	2255	1,005	Extension for reply within fifth month	
1401	330	2401	165	Notice of Appeal	
1402	330	2402	165	Filing a brief in support of an appeal	
1403	290	2403	145	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive - unavoidable	
1453	1,330	2453	665	Petition to revive - unintentional	
1501	1,330	2501	665	Utility issue fee (or reissue)	
1502	480	2502	240	Design issue fee	
1503	640	2503	320	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CFR 1.17(q)	
1806	180	1806	180	Submission of Information Disclosure Stmt	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	770	2809	385	Filing a submission after final rejection (37 CFR 1.129(a))	
1810	770	2810	385	For each additional invention to be examined (37 CFR 1.129(b))	
1801	770	2801	385	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	

Other fee (specify)

*Reduced by Basic Filing Fee Paid SUBTOTAL (3) ($)

SUBMITTED BY				(Complete if applicable)
Name (Print/Type)	Dr. Robert Vasl	Registration No. (Attorney/Agent)		Telephone 972-3-5366675
Signature	Rvasl			Date 11/5/03

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PROVISIONAL PATENT APPLICATION

Inventor: MORDECHAI DEUTSCH

Title: A MICROSAMPLE CELL EXTRACTION FLUSHING METHOD

FIELD AND BACKGROUND OF THE INVENTION

The present invention relates to cellomics and, more particularly, to a method employing a collection system for live cells from a tissue with a minimal amount of damaging the tissue.

Tissue specimens for pathological analysis are obtained for histological and pathological observations in order to determine factors such as the characteristic features of the tissue. For the purpose of diagnosis it may be highly advantageous to carry out functional assays on living cells that should be obtained before fixation. This can only be performed on condition that the cellular extraction will cause minimal damage to the tissue structure under study.

The most ubiquitous method used by pathologists today employs fixation of thin cuts of tissues with the use of formalin for example. However as stated above, this fixation procedure kills the cells being studied and thus render them useless for functional analysis.

All tissues are open to circulating fluxes of various cells of the immune system. The level and components of this circulation is specifically sensitive to various pathological situations. Functional studies therefore may be

instrumental for diagnostic purposes and therefor there is a growing need to extract such cells with a minimal damage to the tissue before regular pathological procedures are executed.

What is therefore needed is a practical method for gently releasing individual cells from a tissue of cells such as a node.

BRIEF DESCRIPTION OF THE DRAWING

The invention is herein described, by way of example only, with reference to the accompanying drawing. With specific reference now to the drawing in detail, it is stressed that the particulars shown are by way of example and for purposes of illustrative discussion of the preferred embodiments of the present invention only, and are presented in the cause of providing what is believed to be the most useful and readily understood description of the principles and conceptual aspects of the invention. In this regard, no attempt is made to show structural details of the invention in more detail than is necessary for a fundamental understanding of the invention, the description taken with the drawings making apparent to those skilled in the art how the several forms of the invention may be embodied in practice.

Figure 1 shows a cap positioned above a tissue in a Petri dish; and

Figure 2 shows two tips protruding from holes in cap.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Before explaining at least one embodiment of the invention in detail, it is to be understood that the invention is not limited in its application to the details of construction and the arrangement of the components set forth in the following description or illustrated in the drawings. The invention is capable of other embodiments or of being practiced or carried out in various ways. Also, it is to be understood that the phraseology and terminology employed herein is for the purpose of description and should not be regarded as limiting.

As is described more in d tail hereinbelow, cells are gently flushed from tissues and collected in a suspension. Figure 1 is a photo of a 'cap' **20** that may be placed on the surface of a tissue or a node of cells **22** to be studied. The tissue **22** to be studied may preferably first be placed onto a preferably sterile surface **24** such as a Petri dish. The cap **20** is for providing an area on and above the tissue **22** that will be isolated from the rest of the environment into which the flushing can occur. The cap may be formed from any biocompatible material and may be rigid or resilient. An example of a resilient cap is a rubber or silicon plunger gasket of a 2 ml syringe such as or similar to one made by Luer.

The cap can then be pressed against the tissue or node so as to form a vacuum surrounding the tissue. The cap can have at least one hole **26** or perforation or preferably two, one for suction and another for pumping. The holes may be anywhere on the cap **20** preferably on opposite sides on the top surface **28** of the cap as shown in Figure 2. The holes are configured to be large enough to accommodate a suction device or a pumping device **30**. Even though, it may be preferable to have one hole for suction and another for pumping, both suction and pumping may be performed through the same hole.

According to preferred embodiments of this invention, a selected part of a tiny piece of tissue/node is exposed to a localized and extensive flush of physiological solutions in order to gently release intact cells, which can then be collected. As can be seen in Fig. 1, hollow tubes such as plastic tips are inserted into the holes of cap **20**.

One of the tips may be connected to a solution supply, via for example a pipettor **30**, which allows for repeatable flushing utilizing the same volume of solution. The latter step is performed after pressing the rubber cap **20** towards the piece of tissue **22**. Both the flexibility of the rubber cap and the tissue softness, as well as the pressure that the solution is delivered, ensure localized flushing and cell release.

The released cell suspension is collected at the last suction following the last pumping and the cells that have been flushed off the tissue and are now suspended in the flushing solution and may now be removed for further treatment, observation, study, manipulation etc.

A preferred environment for the treatment, observation, study or the manipulation of the flushed cells etc is a cell chip as described by Deutsch in PCT patent application number WO 03/035824 filed 25 October 2001 which enables the observation and manipulation of single cells or a defined amount of cells in their own individual locations.

Although the invention has been described in conjunction with specific embodiments thereof, it is evident that many alternatives, modifications and variations will be apparent to those skilled in the art. Accordingly, it is intended to embrace all such alternatives, modifications and variations that fall within the spirit and broad scope of the present specification.

WHAT IS CLAIMED:

1. A method for flushing cells from tissues essentially as described hereinabove or depicted in the figures.

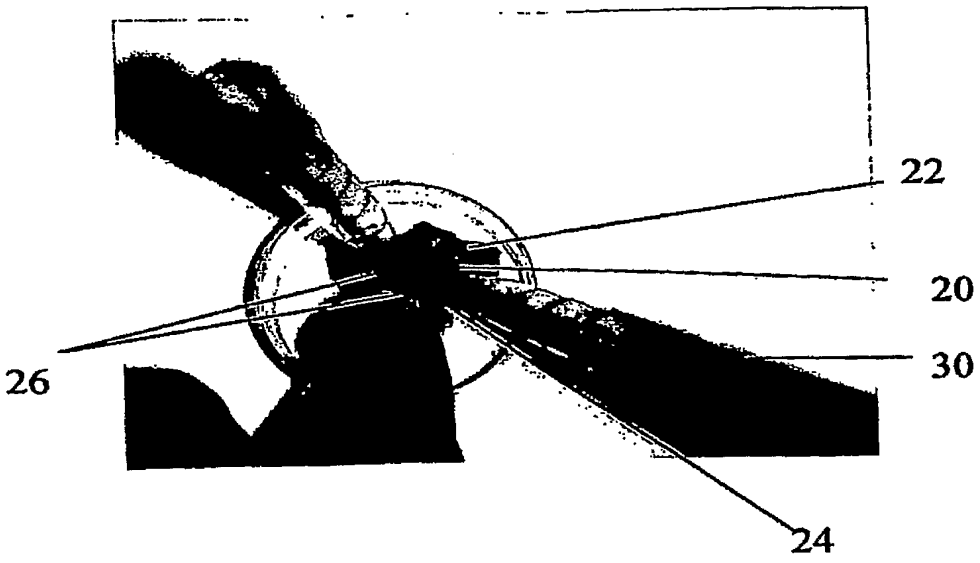

Figure 1

1/2

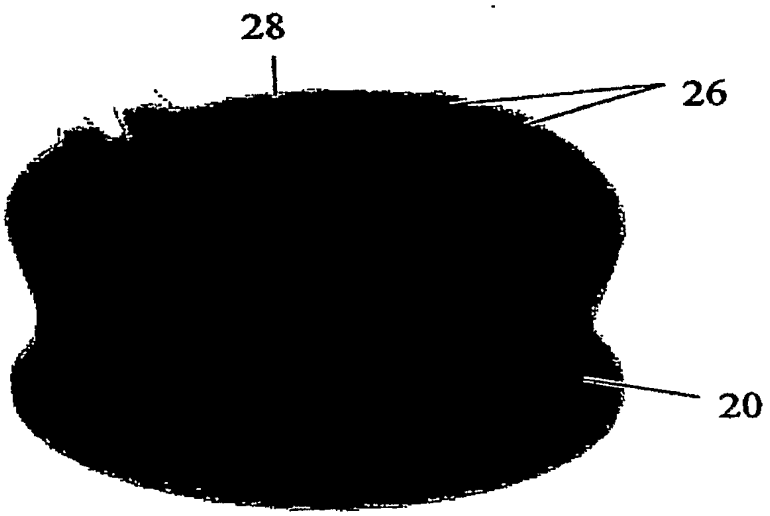

Figure 2

2/2